CLAIMS

1. A wave power apparatus comprising at least one arm, the arm being rotationally supported at one end by a shaft and carrying a float at its other end, which is opposite to the supported end, so that a translational movement of the float caused by a wave results in rotation of the arm around the shaft, the apparatus comprising power conversion means for converting power transmitted from the wave to the arms into electric power, characterised by
a hydraulic lifting system for lifting the float out of the ocean and for locking the float in an upper position above the ocean surface.

2. A wave power apparatus according to claim 1, wherein the float is pivotally joined to the arm.

3. A wave power apparatus according to claim 1 or 2, comprising a plurality of arms, each arm being supported by at least two bearings which are arranged along a common centre axis, which is coincident with an axis of rotation of the arm, the bearings being offset from the centre axis, so as to counteract radial and axial forces.

4. A wave power apparatus according to claim 3, wherein the bearings are pre-stressed in an axial direction.

5. A wave power apparatus according to claim 3 or 4, wherein each of the bearings comprises an inner and an outer ring or cylinder, the inner ring being secured to a rotational shaft of the arm, and the outer ring being secured to a fixed support, the bearing further comprising a flexible material between the inner and the outer ring.

6. A wave power apparatus according to claim 5, wherein the flexible material comprises at least one cavity or perforation.

7. A wave power apparatus according to claim 5 or 6, wherein the flexible material comprises at least one spring member, such as a flat spring.

8. A wave power apparatus according to any of the preceding claims, wherein the at least one arm comprises a plurality of arms which are arranged in a row such that a wave passing the row of arms causes the arms to successively pivot around the shaft, the arms being arranged at mutual distances, so that at all times at least two of the arms simultaneously deliver a power contribute to the power conversion means, the power conversion means

comprising a hydraulic actuator associated with each arm, the hydraulic actuators feeding a hydraulic medium into at least one hydraulic motor via common hydraulic conduits.

9. A wave power apparatus according to claim 8, wherein the row of arms is oriented such with respect to the wave heading that the row forms an angle of within +/- 60o with respect to the heading.

10. A wave power apparatus according to claim 8 or 9, wherein each of the arms intermittently transmits power to the power conversion means when a wave passes the float of the arm, the arms and floats being arranged with such mutual distances that, at all times, at least two arms and floats simultaneously deliver a power contribute to the power conversion means.

11. A wave power apparatus according to any of the preceding claims, wherein buoyancy of the float is at least 10 times its dry weight.

12. A wave power apparatus according to any of the preceding claims, wherein the diameter of the float is at least 5 times its height.

13. A wave power apparatus according to any of the preceding claims, wherein the plurality of arms comprises at least five arms per wavelength of waves.

14. A wave power apparatus according to any of the preceding claims, wherein the plurality of arms comprises at least five arms spanning over a total length of 50 – 200 m.

15. A wave power apparatus according to any of the preceding claims, wherein the arms and the floats are made from a material which has a density of at most 1000 kg/m3.

16. A wave power apparatus according to any of the preceding claims, wherein the power conversion means comprises a hydraulic driving system with at least one hydraulically driven motor.

17. A wave power apparatus according to claim 16, wherein each arm is connected to the hydraulic driving system by means of at least one actuator which causes a hydraulic medium of the hydraulic driving system to be displaced into one or more mutual motors, the actuators being arranged to displace the hydraulic medium to the motor(s) via common hydraulic conduits.

18. A wave power apparatus according to claim 17, wherein the at least one actuator of each arm comprises a double-acting cylinder.

19. A wave power apparatus according to claim 18, wherein the double-acting cylinder forms part of the hydraulic lifting system, so that the cylinder is controllable to lift the float out of the ocean.

20. A wave power apparatus according to claim 18 or 19, wherein the hydraulic driving system comprises at least one hydraulic accumulator for intermittently storing energy in the hydraulic driving system, and wherein the hydraulic driving system is controllable to release the energy stored in the accumulator, when a float is passed by a wave trough, so as to force the float carried by the arm into the wave.

21. A wave power apparatus according to claim 17 and 20, wherein the hydraulic medium is fed to the hydraulic accumulator system via the common hydraulic conduits.

22. A wave power apparatus according to any of claims 18-21, wherein each cylinder is provided with a sensor for determining a position and/or rate of movement of the cylinder's piston, the sensor being arranged to transmit a signal to a control unit of the cylinders and associated valves, so that the transmission of energy from the individual cylinders to the remaining parts of the hydraulic driving system is individually controllable in response to the signal representing the individual cylinder's piston's position and/or rate of movement.

23. A wave power apparatus according to any of the preceding claims, wherein the shaft and the power conversion means are supported by a supporting structure which is anchored to the sea floor by means of a suction anchor.

24. A wave power apparatus according to claim 23, wherein the supporting structure is anchored to the sea floor by means of a suction anchor and/or a gravitational support.

25. A power apparatus according to claim 23 or 24, wherein the supporting structure comprises a truss structure, and wherein the suction anchor is arranged in a first nodal point of the truss structure.

26. A wave power apparatus according to claim 25, wherein the supporting structure comprises a truss structure, and wherein the at least one arm is supported by the truss structure in a second nodal point thereof.

27. A wave power apparatus according to claim 26, wherein said second nodal point is arranged at a summit of a triangular substructure of the truss structure, and wherein the triangular substructure defines two vertices at the sea floor, with an anchor in each of the corners.

28. A wave power apparatus according to claim 27, wherein the truss structure comprises a polygonal substructure, preferably a rectangular substructure, arranged above the triangular substructure.

29. A wave power apparatus according to any of claims 23-28, wherein the supporting structure comprises a ballast for providing a downward force on the supporting structure, the ballast being arranged above sea level.

30. A wave power apparatus according to claim 29, wherein the ballast comprises at least one ballast tank or ballast container.